

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

STANDING STOCKS OF FISHES IN
SECTIONS OF LITTLE LAST CHANCE
CREEK, PLUMAS COUNTY, 1992

by

Charles J. Brown
Bay-Delta and Special Water Projects Division

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INTRODUCTION

The Department of Water Resources (DWR) initiated an instream flow program in 1976 to identify streams that would benefit from flow enhancement and to assess instream values. The Northern District of DWR selected Little Last Chance Creek below Frenchman Reservoir (Figure 1) as one of the streams to study under this program.

Department of Fish and Game (DFG) biologists studied trout populations in Little Last Chance Creek in 1976, 1981, 1986, and 1991. Brown trout (Salmo trutta) was the only game fish caught each year. Sacramento suckers (Catostomus occidentalis) were also caught each year (Brown 1976, Bumpass et al. 1989, Brown 1991, Brown 1992).

This report documents the results of sampling conducted in 1992. The purpose of this study is to evaluate the effects of the operation of Frenchman Reservoir on populations of trout in Little Last Chance Creek through the periodic sampling of fish at established stations in that creek. Results of this report and previous reports on Little Last Chance Creek will be discussed in a summary report that will be written in 2001.

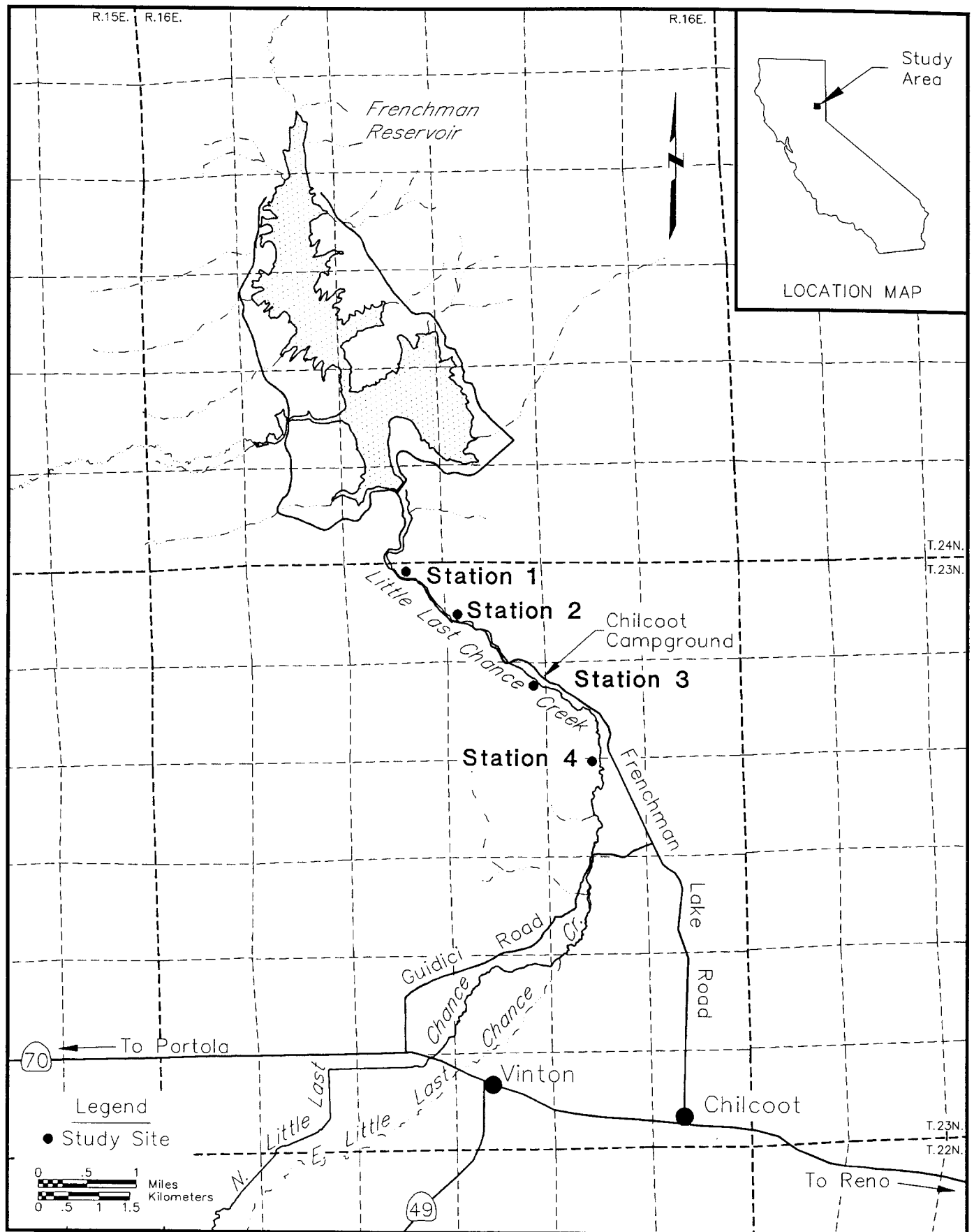


Figure 1. Stations Sampled to Estimate Standing Stocks of Fish in Little Last Chance Creek, Plumas County, 1992.

METHODS

Standing stocks of fishes were estimated at four stations in Little Last Chance Creek (Figure 1) in Plumas County in September, 1992. Stations were intentionally selected to be near stations sampled in previous DFG studies (Appendix 1). Markers had previously been placed in trees along the stream to identify station boundaries. Stations varied in length from 49.0 to 74.4 m. The length, average width, and average depth of each station was measured. Fish were captured with a battery-powered backpack electroshocker in stream sections blocked by seines. Captured fish were removed from the net-enclosed section on each pass. Standing stock estimates were developed using the two-count method of Seber and LeCren (1967) or the multiple-pass method of Leslie and Davis (1939) with limits of confidence computed using a formula proposed by DeLury (1951).

The weight of each trout was determined by displacement. Fork length (FL) of each fish was measured to the nearest millimeter. Scale samples were not taken.

Distribution of fish caught is listed according to location. Standing crops of brown and rainbow trout (Oncorhynchus mykiss) were calculated for individual stations where each fish was caught.

RESULTS AND DISCUSSION

Brown trout were caught at stations 1 and 4. Rainbow trout were caught at stations 1 and 2. Speckled dace (Rhinichthys osculus) were caught in station 4 (Table 1).

TABLE 1. Distribution of Fishes in Sections of Little Last Chance Creek, Plumas County, 1992.

	Station Number			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Distance below Frenchman Dam (km)	1.6	3.2	4.4	6.6
Brown trout	X			X
Rainbow trout	X	X		
Speckled dace				X

Brown trout biomass averaged 0.1 g/m² at two stations. No brown trout large enough for fishermen to catch and keep (≥ 127 mm FL) were caught (Table 2 and Appendix 3).

TABLE 2. Estimate of Brown Trout Standing Crop in Little Last Chance Creek, Plumas County, 1992.

Distance Below Frenchman Dam (km)	Population Estimate	95% Confidence Interval	Biomass (g/m ²)	Estimate of Catchable Trout (≥127 mm FL)	Biomass of Catchable Trout (g/m ²)
1.6	13	8-40	0.17	0	0
3.2	0	-	-	-	-
4.4	0	-	-	-	-
6.6	1	1-1	0.03	0	0

Rainbow trout biomass averaged 1.01 g/m² at two stations. Biomass of rainbow trout large enough for fishermen to catch and keep (≥127 mm FL) also averaged 1.01 g/m² (Table 3 and Appendix 2).

TABLE 3. Estimate of Rainbow Trout Standing Crop in Little Last Chance Creek, Plumas County, 1992.

Distance Below Frenchman Dam (km)	Population Estimate	95% Confidence Interval	Biomass (g/m ²)	Estimate of Catchable Trout (≥127 mm FL)	Biomass of Catchable Trout (g/m ²)
1.6	2	2-2	1.48	2	1.48
3.2	1	1-1	0.54	1	0.54
4.4	0	-	-	-	-
6.6	0	-	-	-	-

Brown trout population estimates in previous years averaged between <1 and 21 while biomass averaged between 0.3 and 5.5

g/m². Rainbow trout population estimates ranged from 0 to 96 and biomass averaged between 0 and 13.9 g/m² (Table 4).

TABLE 4. Average Standing Crops and Biomass for Brown and Rainbow Trout in Little Last Chance Creek, 1976-1992.

Year	Brown Trout		Rainbow Trout	
	Population Estimate	Biomass g/m ²	Population Estimate	Biomass g/m ²
1976	1	1.2	8	13.9
1981	6	2.7	17	4.0
1986	10	3.7	96	3.8
1988	21	5.5	43	6.5
1991	<1	0.3	0	0
1992	3	0.1	1	0.5

The trout we caught were planted by the DFG in spring 1992. The DFG planted fingerling rainbow and brown trout and catchable rainbow trout (Ron DeCoto, Fishery Biologist, DFG, personal communication). We caught no trout other than planted trout in 1991 or 1992. Few planted trout survived.

So few fish were caught because the DFG treated Frenchman Reservoir, Little Last Chance Creek and parts of the Feather River with rotenone to kill northern pike (Esox lucius). The DFG killed northern pike in this watershed to prevent them from migrating downstream into the Sacramento River. The DFG feels that pike could become established in the Sacramento River and become significant predators on juvenile salmonids (Brown 1992).

LITERATURE CITED

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APPENDIX 1

PERMANENT FISH POPULATION STATIONS FOR LITTLE LAST CHANCE CREEK, PLUMAS COUNTY SEPTEMBER 1992

Station 1 (1-Mile Station) - Located 1.6 km below Frenchman Dam just downstream from the first bridge at elevation of 1659 m MSL in NW 1/4 of NE 1/4, Section 4, T23N, R16E. This station begins in a rapid beneath the bridge carrying Frenchman Lake Road, then enters a pool with a deeply undercut room-sized boulder on the right bank. The remainder of the station is a short rapid and a shallow pool/run. About 55 percent of the station is pool and 45 percent rapid. Substrate is boulder, rubble, and sand. The station is 49 m long with a surface area of 288 m² at a flow of 0.4 cms.

Station 2 (2-Mile Station) - Located 3.2 km below Frenchman Dam adjacent to the upper end of a large turnout at an elevation of 1610 m MSL in NW 1/4 of SW 1/4, Section 3, T23N, R16E. This station begins in a large plunge pool followed by two shallow pool/run areas and two short rapids. About 45 percent of the station is pool and 55 percent rapid. Substrate is boulder, rubble, and sand. The station is 74.4 m long with a surface area of 439 m² at a flow of 0.4 cms.

Station 3 (Campground Station) - Located 4.4 km below Frenchman Dam adjacent to the cutoff road in the center of Chilcoot Campground at an elevation of 1561 m MSL in NE 1/4 of NE 1/4, Section 10, T23N, R16E. This station begins in a steep rapid followed by a long pool with undercut right bank, then a short rapid, a short pool, and finally, another steep rapid. The station is 40 percent pool and 60 percent rapid. Substrate is boulders, rubble, and sand. The station is 57 m long with a surface area of 388 m² at a flow of 0.4 cms.

Station 4 - Located 6.6 km below Frenchman Dam at an elevation of 1537 m MSL in SW 1/4 of SE 1/4, Section 11, T23N, R16E. This station begins at the head of a long riffle followed by a long run with pool microhabitat and ends in another gradual riffle. This station is 15 percent pool, 50 percent riffle, and 35 percent run. Substrate is cobbles, gravel, and sand. The station is 52 m long with a surface area of 353 m² at a flow of 0.4 cms.

APPENDIX 2

LENGTH AND WEIGHT OF RAINBOW TROUT
CAUGHT IN LITTLE LAST CHANCE CREEK, 1992

<u>Fork Length (mm)</u>	<u>Weight (g)</u>
220	155
270	270
290	235

APPENDIX 3

LENGTH AND WEIGHT OF BROWN TROUT CAUGHT IN LITTLE LAST CHANCE CREEK, 1992

<u>Fork Length (mm)</u>	<u>Weight (g)</u>
60	3
61	3
62	3
66	3
67	4
67	4
69	4
80	6
92	10